

Attachment 8.1
Brookhaven National Laboratory
RADIOLOGICAL WORK PERMIT
(Shaded area to be completed by requester)

RWP #: _____

Start Date: _____

End Date : _____

Revised End Date: _____

RWP Job Specific General

1. Initiator:		2. Life #:	3. Phone:	4. Bldg:
5. Job Location(s):				
6. Job Description:				
6a. Work Begins:		6b. Work Ends:		
7. Historical/Other Concerns:				
8. Signature of Initiator:				
9. Conditions that will void RWP:				
10. Job Review: Pre-Job Review Pre-Job Briefing ALARA Review Summary/Closeout Other: Not Applicable		11. Estimated Dose: Per Job Per Entry Highest Individual: Collective: Not Applicable		12. Attachments: Radiological Survey Form Technical Work Document Other: _____ Not Applicable
13. Training Requirements Radiation Worker I (RWT 002) High/Very High Radiation (RWT 400) Contamination (RWT 300, 300A) Benchtop/Dispersables (RWT 500) Activation (RWT 200) Other: _____				
14. Work Controls: FS Coverage Intermittent Continuous Hold Points Air Monitoring Shielding Other Not Applicable		15. Protective Equipment: Gloves _____ Shoe Covers _____ Booties _____ Coveralls _____ Red Trim Lab Coat Respirator _____ Head Cover _____ Other _____ Not Applicable		16. Dosimetry: TLD Self Reading Dosimeter Pencil Digital Alarming Dosimeter Finger Dosimetry Not Applicable
17. Check Out Instructions: Whole Body Count Urine Sample for Bioassay Contamination Check Personnel Equipment Equipment Return Portal Monitor Tools Post Job Survey Not Applicable				
18. Special Instructions (Hold Points, special dose limits, etc.):				
19. Signature Approvals:		Department	Life Number	Date
FS Representative:				
Other (Department Specific):				
20. Close-Out Signature (FS Representative):				

Attachment 8.2

Dose Estimate Work Sheet

Job	Task	Number of Persons	Task Duration (min)	Dose Rate (mR/hr)	Total Dose for Task (person-mrem)
Total	-----	-----	-----	-----	

Attachment 8.3

Pre-Job Review Form

1. Pre-Job Review Check-off Area

Issue Reviewed	Date Completed
Scope of work to be performed	
Radiological conditions of the workplace	
Procedural and RWP requirements	
Special radiological control requirements	
Radiologically limiting conditions, such as contamination or radiation levels that may void RWP	
Radiological Control Hold Points	
Communications and coordination with other groups	
Provisions for housekeeping and final clean-up	
Emergency response provisions	

2. Determination if a Department/Division ALARA Review is required:

1. Estimated individual dose is greater than the department limit (~100 mrem per day) or the collective dose is greater than 750 person-millirem. (The collective dose should be considered over a project, or work evolution, rather than an isolated phase of the project or work evolution.) (Y or N)
2. Predicted airborne radioactivity exposures are in excess of 40 DAC-hours. (Y or N)
3. Work area removable contamination is greater than 100 times the values in BNL RADCON Manual Table 2-2. (Y or N)
4. Entry into areas where dose rates exceed 1 rem/hour. (Y or N)
5. Potential radioactive releases to the environment that would result in an off-site exposure of 0.1 mrem. (Y or N)

Completion of an ALARA Review is required if a positive response is given to any of the above conditions. The ALARA Review is performed by the ALARA Coordinator and the requirements for an ALARA review are found in the BNL RADCON Manual (reference 7.1), chapter 3, Part 1, section 312.4 or in Attachment 8.5 of this procedure.

Comments:

Person Performing the Review :

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Attachment 8.4

ALARA Review Checklist

Respond yes/no/NA(not applicable) to the following issues. If there is a "yes" response additional description is required, include an attachment. Technical Work Documents and the RWP may need to be revised following the ALARA review.

Topic:	Yes	No	NA
Are Radiological Control Hold Points in the technical work documents and RWP at appropriate places?			
Has radioactivity been eliminated or reduced through source removal (e.g. line flushing, de-sludging) or decontamination techniques?			
Have work processes and special tooling been used to reduce time in the work area?			
Have engineered controls been used to minimize the spread of contamination and generation of airborne radioactivity?			
Are there special radiological training or monitoring requirements and are they identified in the work plan or RWP?			
Would the use of mock-ups for high exposure or complex tasks help reduce the dose in a cost effective			

manner?			
Have the use of engineering, design and use of temporary shielding to reduce radiation levels been considered?			
Have walk-downs and/or or dry-runs of the activity using applicable procedures been conducted?			
Have staging and preparation of necessary materials and special tools taken place in low dose-rate areas?			
Have prefabrication and shop work outside the radiation area been maximized?			
Have abnormal and emergency procedures and plans been reviewed?			
Has the line manager identified of points where signatures and second party or independent verifications are required?			
Have success or completion criteria, with contingency plans to anticipate difficulties been established?			
Has there been a pre-job estimate of collective dose to be incurred for the job?			
Have provisions for waste minimization and disposal been made?			

2. Radiological work anticipated to exceed individual or collective dose criteria of 750 person-mrem shall be reviewed and approved by the Department/Division ALARA Committee.

3. Optimization techniques, including cost-benefit analysis, represent a fundamental part of radiological design analysis and work review. [10CFR835.1002(a)] For review of minor activities with low associated doses, a cost-benefit evaluation is an intrinsic part of the engineering review process and a detailed evaluation is not necessary. For review and planning of major tasks involving higher collective dose expenditures greater than 750 person-mrem, a detailed and documented evaluation shall be performed.

Department ALARA Coordinator, Chairman of the ALARA Committee or Radiological Control Division Radiological Engineering Group Member:

Signature:

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Sign-In Log for RWP No. _____

Your signature on this form indicates that you have read, understood, and will comply with the requirements of the above numbered RWP.

[illegible]

Attachment 8.6

RWP ACCESS SHEET

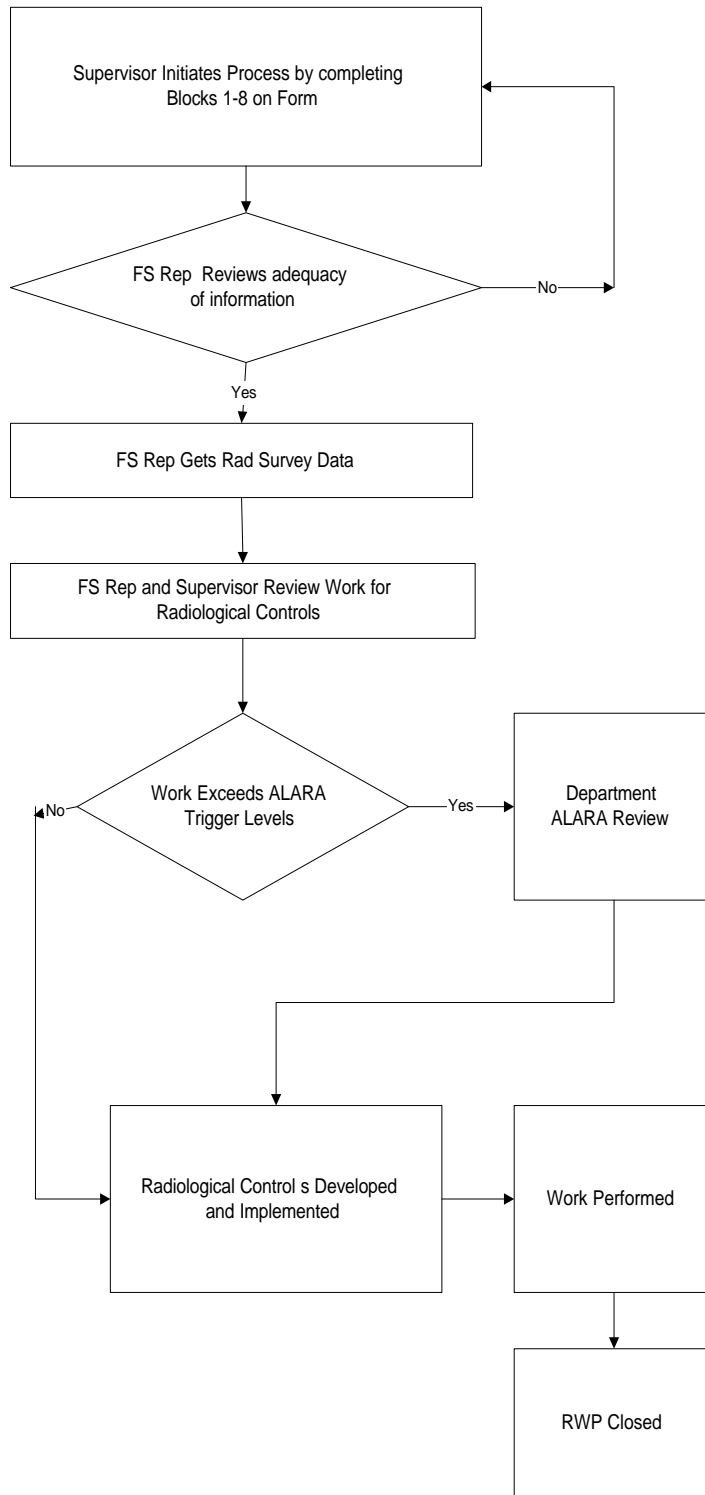
RWP# _____

PRINT NAME	SIGNATURE	LIFE #	DATE	TIME IN	TIME OUT	DOSIMETER #	SRD READING PRE	SRD READING POST	NET-SRD READING
								PAGE TOTAL	

NOTE: Signing this access sheet indicates you have read, understand and will comply with the RWP.

CAUTION: Changes in Job Scope or in Radiological Conditions will void this RWP. Consult the Radiological Control Division Facility Support Representative for direction.

Attachment 8.7
Radiological Work Permit Flow Chart



Attachment 8.8

Requirements for Alternatives to RWPs

Alternates to an RWP are permitted. Alternative mechanisms for establishing radiological controls shall contain the following elements:

1. Description of work
2. Work area radiological conditions
3. Dosimetry requirements
4. Pre-job briefing requirements, as applicable
5. Training requirements for entry
6. Protective clothing and respiratory protection requirements
7. Radiological control coverage requirements and stay time controls, as applicable
8. Limiting radiological conditions that may void the RWP
9. Special dose or contamination reduction considerations
10. Special personnel frisking considerations
11. Bioassay Requirements
12. Special Work Controls such as:
 - Facilities Support Coverage
 - Hold Points
 - Air Monitoring Requirements
 - Localized Shielding
13. Technical work document number, as applicable
14. Unique identifying number
15. Date of issue and expiration
16. Authorizing signatures.